Asset Management Directs $250M to Key Projects

When Asset Management is up and running in 2020, Caltrans and its partners expect to be able to select projects based on their overall contribution toward an integrated and sustainable system, rather than on their benefit to a single asset class such as culverts or bridges, as is currently the case. This will allow Caltrans to get the most out of its limited highway funds.

Although the Asset Management effort, initiated in 2015, is still in its infancy, it has already had an impact on the State Highway Operation and Protection Program (SHOPP), the state's "fix-it-first" program that funds the repair and preservation of the state highway system, safety improvements and some highway operational improvements (see story, page 6).

The 2016 Asset Management Report, presented to the California Transportation Commission (CTC) in March, zeroed in on the growing culvert inventory needs and lagging condition of the Intelligent Transportation System (ITS), which resulted in a $250 million reserve in the 2016 SHOPP to improve performance in these two areas.

With SHOPP funding expected to be relatively level through 2020 for pavement and bridges, it is instructive to take a closer look at the culverts and ITS programs to see how Asset Management planning works.

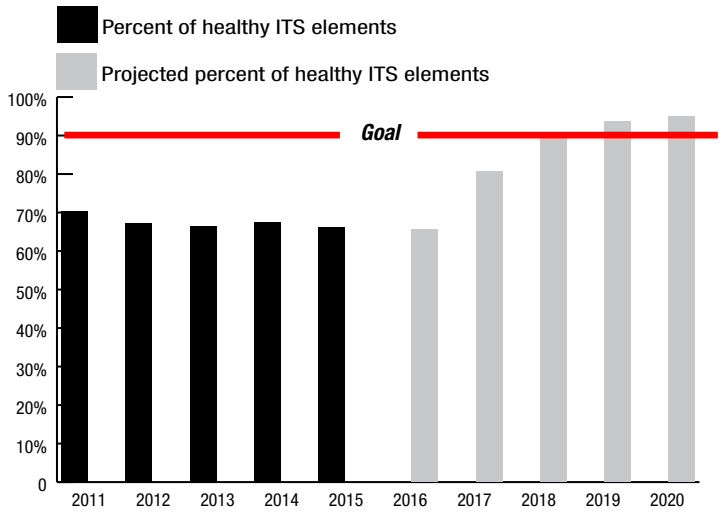
Intelligent Transportation System

ITS elements increase the efficiency of the existing highway system by improving the flow of traffic as congestion increases. The system's most effective tools are Caltrans' 2,802 ramp meters, 834 changeable message signs and more than 43,200 highway loop detectors. The problem in this area is that thousands of these loop detectors no longer work. The loops are integrated with the ramp meters to control how fast vehicles are allowed onto the highway. If the loops are not functioning, then the ramp meters are not as effective as they could be and congestion on the highway increases.

In recognition, the department has proposed reserving $150 million more to allow additional ITS projects to be planned and included in the later years of the 2016 SHOPP (through 2020). This reaction to lagging performance reflects an adjustment of the investment strategy to achieve a desired future performance goal. This is asset management.

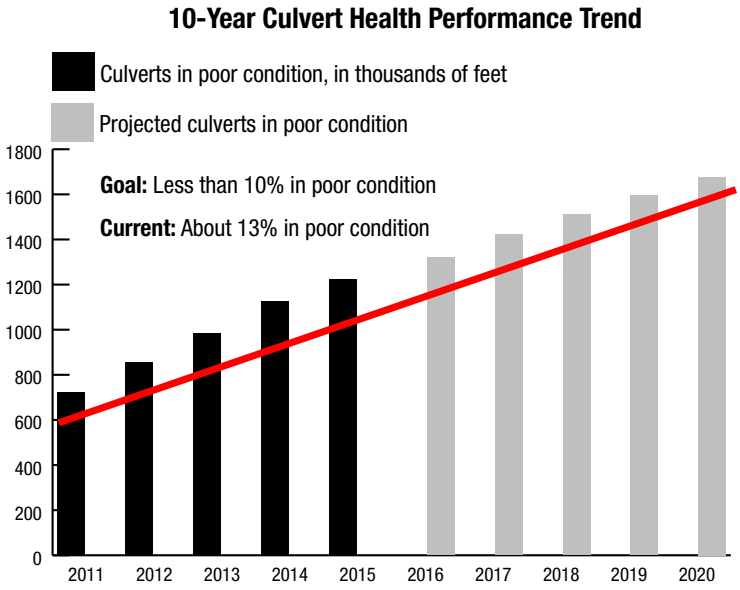
The department will also evaluate improved technology and alternative means to capture the necessary information in addition to conventional loop detection approaches (see story on Bluetooth travel-time readers page 18).

10-Year ITS Element Health Performance Trend



The 2016 SHOPP includes rehabilitation or replacement of 1,600 existing ITS elements and the addition of 1,100 ITS elements. The total 2016 SHOPP investment in ITS elements statewide is $260 million from July 2016 to June 2020. As a result of Asset Management's recognition of lagging performance, Caltrans is proposing an additional $150 million SHOPP reservation to allow more ITS projects to be planned and included through 2020.

A new drainage culvert is added to Highway 89 in the Lake Tahoe area.



Culverts

Among the four asset classes, highway culverts are unique in that the inventory is still growing – with the total now at about 105,000. Ongoing culvert inspections are adding approximately 10,000 each year, with about 13 percent of the known inventory currently in poor condition.

Failure to address deteriorating culvert conditions increases the risk of potential mobility disruptions during periods of heavy water runoff. Maintaining these culverts is no small task. If one were to line the entire culvert inventory end to end, the length would reach from San Francisco to Illinois.

The 2016 SHOPP project portfolio includes 37 culvert rehabilitation or replacement projects valued at $150 million, which will address about 64,000 feet of poor-condition culverts. To keep up with the growing culvert needs, shown in the chart above, the department is proposing spending an additional $100 million over the next four years to improve the performance of culverts statewide.

As reported in the 2016 Asset Management Report, 2015 was marked with many activities related to the implementation of asset management in California. These activities include:

- Completion of an updated automated pavement condition survey of state highway pavement.
- Rollout of new condition assessment methods for pavement and bridges.
- Refinement of SHOPP project prioritization methodology through an asset management pilot program.
- CTC adoption of the four core asset classes: pavement, bridges, culverts and ITS elements.
- Adoption of performance measures for all four asset classes (pavement and bridges pending final federal rulemaking).
- Collection of risk management information required by the Moving Ahead for Progress in the 21st Century (MAP-21) and continued in the Fix America's Surface Transportation (FAST) Act.
- Implementation of the SHOPP Management Tool.
- Evaluation of several commercially available asset management software programs.
- External outreach to transportation partners through workshops and the formation of the Transportation Asset Management Advisory Committee.
- Initiation of contracts to provide consultant assistance with Transportation Asset Management Plan development and project prioritization efforts.

The recently released 2016 Asset Management Performance Report relies on information available at the time of writing and asset management tools already in place. The expectation is that this performance report will be a building block that can be improved through implementation efforts and feedback as Caltrans moves closer to full implementation in 2020.

Source: Engineer Michael B. Johnson, State Asset Management, 2016 Asset Management Report